

### REMARKS

This Amendment is submitted in response to the Office Action dated August 5, 2004, having a shortened statutory period set to expire November 5, 2004. Claims 1-78 are pending. Applicants have amended Claims 1, 22, 34, 44, 46, 48 and 59; and canceled claims 23, 42 and 43. No new matter has been entered by these amendments.

### Amendment to the Specification

The Specification has been amended on page 6 to correct a typographical error. No new matter has been entered by this amendment.

### Claim Amendments

Claim 1 in the present application has been amended to further clarify certain steps therein, and further to incorporate the limitations of claim 2 dependent therefrom. Independent claim 22 in the present application has been amended to incorporate the limitations of claim 23 dependent therefrom, and to more clearly and distinctly claim the invention represented thereby. This amendment is supported in the specification at multiple locations, including page 8, lines 20-22. Independent claim 34 in the present application has been amended to incorporate the limitations of claims 42 and 43 dependent therefrom. Independent claim 59 has been amended to correct a typographical error.

### Claim Objections

In section 1 in the present Office Action, claim 45 has been objected to because of informalities. Claim 45 has been amended to correct the informalities and Applicants believe that the objection has been overcome.

### Claim Rejections under 35 U.S.C. §102

In Section 3 of the present Office Action, Claims 59-61 have been rejected under 35 U.S.C. S 102(b) as being anticipated by *Williams et al.* (U.S. Patent No. 5,808,767). That rejection is respectfully traversed and reconsideration of the claims is requested.

Independent Claim 59 in the present application recites, *inter alia*:

*a plurality of optical transceivers, each optical transceiver coupled to one of the plurality of ports of the switch to convert information received from a respective port to a respective one of a plurality of optical source signals, and each optical transceiver assigned to one or more subscriber destinations to allocate unshared bandwidth to assigned subscriber destinations;*

On page 3 of the present Office Action, it is argued that *Williams* teaches this element of the present invention by the disclosed elements of a transmitter array 401 and receiver 403 in Figure 4, and further by the descriptions at col. 10, lines 18-33 and col. 8, lines 24-31. In one teaching (col. 10), *Williams* is teaching assigning fixed wavelengths to each of the transmitters 401 and in another teaching (col. 8), describing that the media access controller 105 has the capability to allocate bandwidth, wavelengths or bit rate connections. *Williams* does not suggest there is a connection between carrier wavelengths set in each of the integrated circuits 401 and bandwidth allocated by MAC 105. The transceivers 401 merely provide the carrier for the allocated bandwidth.

*Williams* does not teach that MAC 105 allocates an entire IC 401 to a specific subscriber and forbids such wavelength to be shared with any other subscriber, for example if a particular carrier frequency generated by IC 401 produces excess bandwidth. The I/O and BD access logic section disclosed by *Williams* provides switchability and performs level 2 and 3 functions of the network architecture (see Figure 2; col. 8, lines 51-col. 9, line 64; lines 18-24). MACs 102 and 105 provide the optical transmitter and receiver functionality at the physical level layer 1. This is where wavelengths of transmitters 401 are allocated. Layer 2 provides the wavelength multiplexing and de-multiplexing functions of each of the customer premises equipment by selectively controlling the optical transmitter and receiver functions of the MAC layer (physical layer 1) (column 8, lines 60-67). While media access controller 102 of IID 101 contains the interfaces between physical layer 1 and higher layers, and carries out level 1 functions, it is I/O and media access logic section 407 as illustrated in Figure 4 that obtains and forwards the appropriate optical inputs and outputs, as well as providing switchability in performing level 2 and level 3 functionality of the network. The content information payload from level 4 is allocated to a prescribed bandwidth at levels 2 and 3, which is sent to transmit array 401 at the

physical layer 1.

From this description, it is clear that MACs 102 and 105 contain a logic section 407 that provides the switchability to expand or contract allocated bandwidth to a particular customer premise via levels 2 and 3. *Williams* teaches that the level 2 packets are allocated by transmit array 401 at the physical layer 2, as bandwidth allows, and not based on a specific “*optical transceiver assigned to one or more subscriber destinations to allocate unshared bandwidth to assigned customer destinations*” as is recited in independent Claim 59 of the present application. Instead, *Williams* teaches that the layer 2 payloads are allocated to wavelengths at timeslots on fiber 104 as those timeslots come available for the pending payload within logic section 407. (see col. 11, lines 55-61). While a customer may request a large amount of bandwidth to transmit data such as video, *Williams* clearly teaches that such bandwidth will be shared if not utilized in any given instant. In other words, transmit array 401 will drop a payload into a wavelength timeslot for a different customer on the same fiber 104 if the other customer demands greater bandwidth and such bandwidth is not currently being used by the allocated customer.

This can be seen in the example *Williams* gives at col. 11, lines 47-col. 12, line 6. As a threshold step, *Williams* teaches determining if the necessary bandwidth is available (col. 11, line 56). If so, MAC 106 allocates a wavelength and timeslot on fiber 104 through operation of transmit arrays 401 at physical layer 1. As can be seen in this description, *Williams* has not allocated “*unshared bandwidth to assigned subscriber destinations*” as is recited in independent Claim 59.

For the reasons given above, Applicants respectfully submit that *Williams* does not show or suggest the present invention as claimed in independent Claim 59. Applicants respectfully request reconsideration of the rejection of Claim 59 under 35 U.S.C. § 102(b). For the same reasons, Applicants also respectfully request reconsideration of rejection of Claims 60-62, which are dependent upon independent Claim 59.

**Claim Rejections under 36 U.S.C. §103**

In Section 5 of the present Office Action, claims 1-3, 5, 6, and 19 have been rejected under 35 U.S.C. §103(a) (Applicants assume that the Examiner mistakenly cited §102(b)) as being unpatentable over *McNamara et al.* (U.S. Patent No. 4,533,948) in view of *Binns, et al.* (U.S. Patent No. 5,329,308). In Section 6 of the present Office Action, Claim 4 is rejected under 35 U.S.C. §103(a) as being unpatentable over *McNamara* and *Binns* as applied to Claim 1, and in further view of *Hooper et al.* (U.S. Patent No. 5,422,390). In Section 7 of the present Office Action, Claim 7 is rejected under 35 U.S.C. §103(a) as being unpatentable over *McNamara* and *Binns* as applied to Claim 6, and in further view of *Bigham et al.* (U.S. Patent No. 5,544,161). In Section 8 of the present Office Action, Claim 8-13 are rejected under 35 U.S.C. §103(a) as being unpatentable over *McNamara* and *Binns* as applied to Claim 1, and further in view of *Hoarty et al.* (U.S. Patent No. 5,526,034). In Section 9 of the present Office Action, Claim 14 is rejected under 35 U.S.C. §103(a) as being unpatentable over *McNamara* and *Binns* as applied to Claim 1, and further in view of *Paik et al.* (U.S. Patent No. 5,136,411). In Section 10 of the present Office Action, Claims 15 and 16 are rejected under 35 U.S.C. §103(a) as being unpatentable over *McNamara* and *Binns* as applied to Claim 1, and further in view of *Eng* (U.S. Patent No. 6,370,153). In Section 11 of the present Office Action, Claims 17 and 18 are rejected under 35 U.S.C. §103(a) as being unpatentable over *McNamara* and *Binns* as applied to Claim 1, and in further view of *Williams*. In Section 12 of the present Office Action, Claim 20 is rejected under 35 U.S.C. §103(a) as being unpatentable over *McNamara* and *Binns* as applied to Claim 1, and in further view of *Perlman* (U.S. Patent No. 5,420,862). In Section 13 of the present Office Action, Claim 21 is rejected under 35 U.S.C. §103(a) as being unpatentable over *McNamara*, *Binns*, and *Perlman* as applied to Claim 20, and further view of *Denker* (U.S. Patent No. 5,958,053). Those rejections are respectfully traversed in reconsideration of the claims is requested.

With respect to independent claim 1 in the present application, therein is recited, *inter alia*:

*allocating unshared bandwidth to each of a plurality of subscriber destinations, wherein only a given subscriber destination from among the plurality of subscriber destinations forwards or receives information utilizing its allocated unshared bandwidth;*

It is argued on page 4 of the present Office Action that this element of the present invention is suggested by *McNamara* at col. 5, lines 32-39. While *McNamara* clearly teaches that each subscriber terminal is assigned a "home channel," the entire teaching of *McNamara* is of a system for permitting two subscriber units to communicate over the same data channel ("naturally, for two subscriber units to communicate, they must both be on the same data channel." col. 5, lines 33-34.) As explained at col. 1, lines 57-65, *McNamara* describes a cable TV communication system for providing message transmission between two subscriber nodes within the cable network. As described at col. 7, line 62-col. 8, line 24, a source node 44 changes its frequency to the frequency of the destination node 40 to permit communication exchange between the two nodes 40 and 44. Thus, *McNamara* teaches that source information is communicated over the same allocated channel (or bandwidth) between the transmitting and receiving subscriber nodes. The operation of *McNamara's* system requires tuning each subscriber unit to the same frequency, thereby permitting shared allocated spectrum space among the 80 FSK data channels. Furthermore, *McNamara* teaches that their system permits many users to share the same data channel. Channel sharing is achieved through CSMA/CD (col. 5, lines 40-54). Clearly, there would be no need for a contention mechanism such as CSMA/CD if every subscriber had unshared bandwidth within the system.

As can be seen, there is nothing "unshared" about *McNamara's* system. Consequently, Applicants submit that *McNamara* cannot show or suggest a system where "*only a given subscriber destination from among the plurality of subscriber destinations forwards or receives information utilizing its allocated unshared bandwidth,*" as is recited in independent Claim 1 in the present application. For the reasons give above, Applicants respectfully submit that *McNamara* in view of the prior art references cited in the present Office Action do not show or suggest Claims 1-21 and that the rejection of those claims should be reconsidered.

In Section 14 of the present Office Action, Claims 22, 23, 25, 32 and 33 have been rejected under 35 U.S.C. §103(a) as being unpatentable over *McNamara*, *Binns* and *Paik*. In Section 15 of the present Office Action, Claims 24 and 26 are rejected under 35 U.S.C. §103(a) as being unpatentable over *McNamara*, *Binns* and *Paik* as applied to Claim 23, and further in view of *Williams*. In Section 16 of the present Office Action, Claims 27 and 28 are rejected

under 35 U.S.C. §103(a) as being unpatentable over *McNamara* and *Paik* as applied to Claim 22, and further in view of *Eng* (U.S. Patent No. 6,370,153). In Section 17 of the present Office Action, Claim 29 is rejected under 35 U.S.C. §103(a) as being unpatentable over *McNamara*, *Binns*, *Paik* and *Eng* as applied to Claim 27, and further in view of *Perlman*. In Section 18 of the present Office Action, Claims 30 and 31 are rejected under 35 U.S.C. §103(a) as being unpatentable over *McNamara*, *Binns* and *Paik* as applied to Claim 22, and further in view of *Wonfor et al.* (U.S. Patent No. 6,381,747). Those rejections are respectfully traversed and reconsideration of the claims is requested.

In particular, with regard to independent Claim 22 in the present application, therein is recited, *inter alia*:

*forwarding, by the gateway device and as a function of an address embedded in the source information identifying a subscriber device from among a plurality of subscriber devices at the subscriber destination, demodulated source information to the addressed subscriber device at the subscriber destination.*

It is argued on pages 23-24 of the present Office Action that this element of the present invention is taught or suggested by *Paik* and further in view of *McNamara*. *Paik* shows in Figure 4 a subscriber terminal 14 that extracts modulated information using directional coupler 94 and programmable FM tuner 96 and demodulates information using FM demodulator 98. The output 112 is sent to a connected subscriber device. As described at col. 9, lines 40-43, signal processor 100 provides a demodulated television signal to any TV receiving device. Thus, it is clear that *Paik* merely transmits a generic television signal output 112, which may be decoded by any device capable of translating the standard video signal. In no way does *Paik* suggest forwarding such video signal to a subscriber device such as a TV or VCR "*as a function of an address embedded in the source information identifying a subscriber device from among a plurality of subscriber devices at the subscriber destination,*" as is recited in Claim 22.

With respect to the teaching of *McNamara*, while message packets do contain a "destination node address," a destination node address merely identifies destination node 152 (see col. 12, line 60-66). Similarly, an assigned channel is assigned to each subscriber terminal

NAU 38 and 42 at subscriber nodes 44 (see col. 5, lines 32-37). As can be seen, *McNamara* is teaching that each destination node has an address. However, *McNamara* is not teaching that each destination has "*a plurality of devices at the subscriber destination*." Moreover, even if *McNamara* did teach a plurality of devices at the destination, they would all be addressed by the same destination node address for their particular subscriber destination. There is nothing within *McNamara* to suggest that additional address information is encoded into the source information to permit the set-top box or other subscriber receiving device to actively "*forward[ing]*" source information to a particular subscriber device at the destination "*as a function of an address embedded in the source information identifying*" the subscriber device, as recited in Claim 22.

For these reasons, Applicants respectfully submit that *McNamara* in view of *Paik* and further in view of *Binns* does not show or suggest independent Claim 22 in the present application and that the rejection of that claim should be reconsidered. For the same reasons as given above, Applicants submit that *McNamara* in view of *Paik* and further in view of *Binns* also do not show or suggest Claims 24-33 and that the rejection of those claims should also be reconsidered.

In Section 19 of the present Office Action, Claims 34, 35, 42, 49, 51-53 and 63 are rejected under 35 U.S.C. §103(a) as being unpatentable over *Hoarty* in view of *Gilbert et al.* (U.S. Patent No. 6,016,311). In Section 20 of the present Office Action, Claim 36 is rejected under 35 U.S.C. §103(a) as being unpatentable over *Hoarty* and *Gilbert* as applied to Claim 35, and further in view of *Paik*. In Section 21 of the present Office Action, Claim 37 is rejected under 35 U.S.C. §103(a) as being unpatentable over *Hoarty* and *Gilbert* as applied to Claim 34, and further in view of *Wunderlich et al.* (U.S. Patent No. 5,426,699). In Section 22 of the present Office Action, Claims 38 and 39 are rejected under 35 U.S.C. §103(a) as being unpatentable over *Hoarty* and *Gilbert* as applied to Claim 34, and further in view of *Huang et al.* (U.S. Patent No. 4,516,238). In Section 23 of the present Office Action, Claim 40 is rejected under 35 U.S.C. §103(a) as being unpatentable over *Hoarty*, *Gilbert*, *Huang* as applied to Claim 39, and further in view of *Williams*. In Section 24 of the present Office Action, Claims 41 and 48 are rejected under 35 U.S.C. §103(a) as being unpatentable over *Hoarty* and *Gilbert* as applied to Claims 34 and 42, and further in view of *Cullers et al.* (U.S. Patent No. 6,353,608). In

Section 25 of the present Office Action, Claim 50 is rejected under 35 U.S.C. §103(a) as being unpatentable over *Hoarty* and *Gilbert* as applied to Claim 49, and further in view of *Binns*. In Section 26 of the present Office Action, Claim 54 is rejected under 35 U.S.C. §103(a) as being unpatentable over *Hoarty* and *Gilbert* as applied to Claim 53, and further in view of *Hooper*. In Section 27 of the present Office Action, Claims 55, 64-70, and 74-78 are rejected under 35 U.S.C. §103(a) as being unpatentable over *Hoarty* and *Gilbert* as applied to Claims 53 and 63, and further in view of *Williams*. In Section 28 of the present Office Action, Claims 56-58 are rejected under 35 U.S.C. §103(a) as being unpatentable over *Hoarty* and *Gilbert* as applied to Claims 34 and 53, and further in view of *McNamara*. In Section 29 of the present Office Action, Claim 62 is rejected under 35 U.S.C. §103(a) as being unpatentable over *Williams* in view of *Gilbert*. In Section 30 of the present Office Action, Claim 71 and 72 are rejected under 35 U.S.C. §103(a) as being unpatentable over *Hoarty* and *Gilbert* and *Williams* as applied to Claim 67, and further in view of *Wonfor*. In Section 31 of the present Office Action, Claim 73 is rejected under 35 U.S.C. §103(a) as being unpatentable over *Hoarty*, *Gilbert*, *Williams* and *Wonfor* as applied to Claim 71, and further in view of *McNamara* and *Perlman*. Those rejections are respectfully traversed and reconsideration of the claims are requested.

Applicants note with appreciation the indicated allowability of Claims 43-47 in Section 32 of the present Office Action. Applicants have rewritten independent Claim 34 to incorporate the limitations of dependent Claims 42 and 43 and believe that such amendments place Claim 34 in condition for allowance. Further, Applicants have amended Claims 44 and 46 to be dependent upon independent Claim 34. Consequently, Applicants believe that Claims 35-41, 44-58 and 58, being dependent upon independent Claim 34, are also now in condition for allowance.


With reference to independent Claim 63 in the present application, it is argued on pages 38-40 of the present Office Action that this claim is suggested by *Hoarty* in view of *Gilbert*. Claim 63 recites, *inter alia*:

*each of the plurality of subscriber channels having a deterministic bandwidth and assigned to one or more of the subscriber destinations, each subscriber destination being assigned an unshared bandwidth allocation;*



It is argued on page 39 in the present Office Action that this element is shown by *Hoarty* at col. 12, lines 5-14, lines 23-28 and at col. 8, lines 40-49. However, as recognized by the Examiner, these "virtual channels" merely identify a fixed frequency that is assigned to a set-top box and that an MMC transmits source information to the set top box over the assigned frequency. *Hoarty* nowhere suggests that another set-top box isn't assigned to the same frequency, and consequently, shares the bandwidth allocated to that frequency. Multiple subscriber destinations can be tuned to the same frequency and receive data over a different virtual channel (e.g., using time division multiplexing on the frequency). Having an allocated virtual channel is not the same as having an allocated channel with a defined and unshared bandwidth. For this reason, Applicants submit that *Hoarty* in view of *Gilbert* does not show or suggest "each subscriber destination being assigned an unshared bandwidth allocation" as is recited in independent claim 63. For the same reasons given above, Applicants submit that *Hoarty* and the other prior references of record do not show or suggest Claims 64-78 dependent thereon and that these claims should also be reconsidered.

Respectfully submitted,

  
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